

MATHS PASSPORT

My Name:

Hello you!

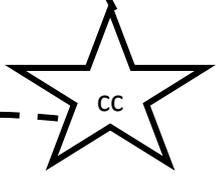
All the Maths teachers at Starbank School are really excited to meet you. Normally during the transition week we would find out a bit more about you and you would find out a bit more about us, and together we would do some Maths. Unfortunately, this year we won't be able to meet until September. This booklet will allow you to get to know our Maths department a little better, do some fun activities and give you the ticket to cross the border into our school!



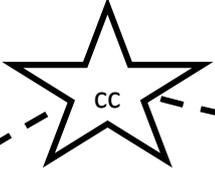


You made it!!!

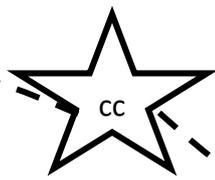
Challenge Week 5



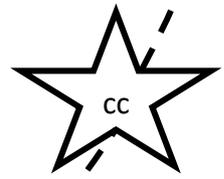
Challenge Week 4



Challenge Week 3



Challenge Week 2



You have officially departed!
Colour in each step as you work your way through the booklet and you will soon be at the entrance of Starbank school.

START HERE

Challenge Week 1

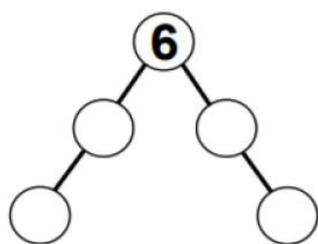


Think

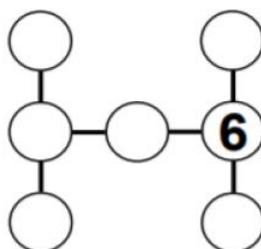
Totalines Challenge

Try this number challenge!

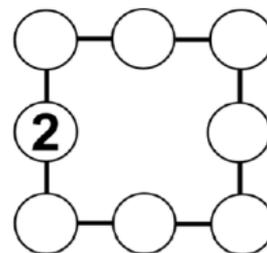
Numbers have to be placed in empty circles. The numbers you should use are listed under each diagram; you cannot use any number twice.



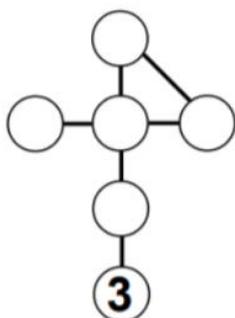
Use 2, 3, 4, 5
Total 13



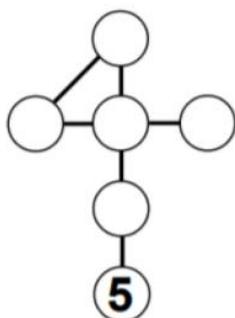
Use 0, 1, 2, 3, 4, 5
Total 10



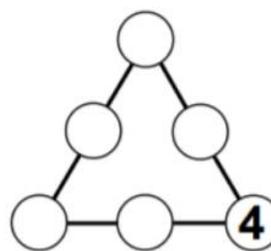
Use 3, 4, 5, 6, 7, 8, 9
Total 18



Use 1, 2, 4, 5, 6
Total 11



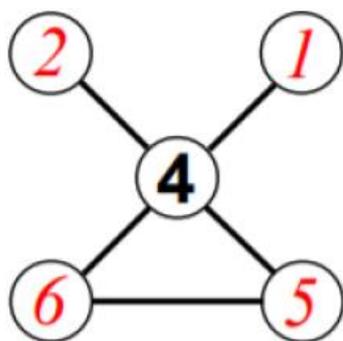
Use 0, 1, 3, 4, 6
Total 10



Use 0, 1, 2, 3, 5
Total 9

The object is to place the numbers so that all those which lie along a straight line, as shown by the lines drawn, add up to the total given (the total is written under the diagram).

The one below has been done for you.



Use 1, 2, 5, 6
Total 11

So:

$$2+4+5=11$$

$$6+4+1=11$$

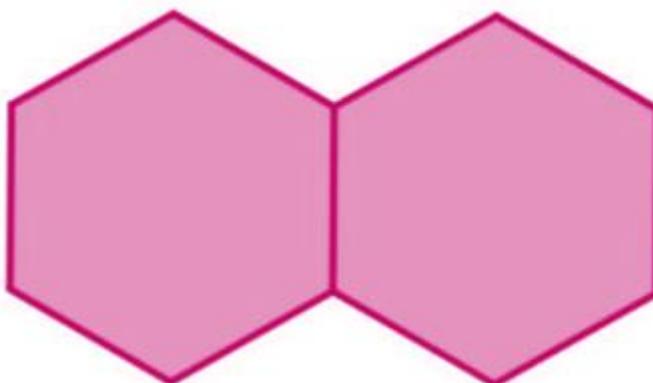
$$6+5 = 11$$



A Hexagon problem

Try this hexagon puzzle!

Heather can make two connected hexagons by drawing 11 lines.



What is the minimum number of lines Heather needs to use to draw 12 hexagons?

Extension: What number of hexagons are the most efficient to draw and why?

This problem is taken from puzzleoftheweek.com. If you enjoy doing puzzles then have a go at the weekly problems on this website



Think

Target 42 Challenge

Your aim is to write down a calculation that gives an answer of 42.



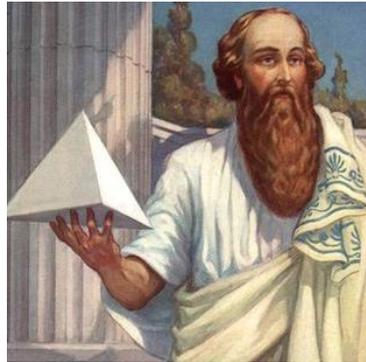
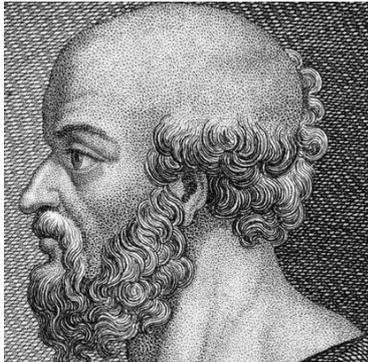
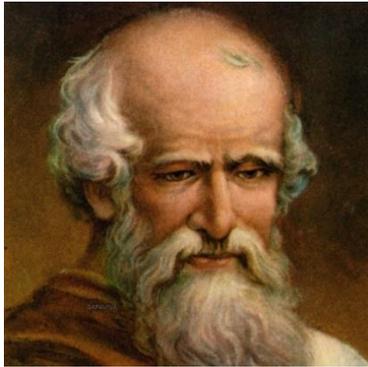
- You can only use the following digits once:
0 1 2 3 4 5 6 7 8 9
- You can use these symbols as many times as you like:
() x ÷ + -
- Make sure your calculation obeys the rules for the order of operations.
- How complicated can you make your calculation?
- Remember to check your calculations.



Research

Famous Mathematicians

Here are some famous mathematicians: **Fibonacci**, **Archimedes**, **Eratosthenes**, **Pythagoras**.



Can you discover:

- when each mathematician lived?
- where each mathematician lived?
- their contribution to maths?



Think

Shape Up!

Try this shape times shape challenge!

The coloured shapes stand for eleven of the numbers from 0 to 12.

Can you work out what each shape stands for from the multiplications?

$$\square \times \square \times \square = \text{semi-circle}$$

$$\text{rectangle} \times \text{rectangle} = \text{star}$$

$$\square \times \text{oval} = \text{semi-circle}$$

$$\square \times \text{star} = \text{hexagon}$$

$$\text{rectangle} \times \text{oval} = \text{circle}$$

$$\text{rectangle} \times \text{diamond} = \text{rectangle}$$

$$\text{rectangle} \times \square = \text{triangle}$$

$$\text{diamond} \times \text{hexagon} = \text{hexagon}$$

$$\text{triangle} \times \square = \text{circle}$$

$$\square \times \text{inverted triangle} = \text{inverted triangle}$$

$$\square \times \square = \text{oval}$$

$$\text{inverted triangle} \times \text{semi-circle} = \text{inverted triangle}$$

From Mrs Bukreedan:

Well done for getting this far! You have done brilliantly, and we cannot wait to see you in September.

Now you have completed some of the Maths Challenges, here is a little riddle for you:

How do you make one disappear?

Maths Equipment

Secondary school mathematics is so exciting!

In September you will need a **pen, pencil and ruler**.

In the Spring term you will need a **geometry set** with a **protractor** and a **pair of compasses**.

We use calculators throughout secondary school and a **Casio ClassWiz FX 991EX** is well worth purchasing.

